TV MODULATORS MT47, MT57

CE

PRODUCT DESCRIPTION

Modulator MT47 is intended to form TV channels of B/G/D/K/I/L/M/N/Australia standards in VHF and UHF ranges.
Modulator MT57 is intended to form TV channels of B/G/Australia MONO/STEREO A2 and D/K/I/L/M/N MONO standards in VHF and UHF ranges.
Broadcasting signal has double sideband modulation.
The modulators are intended for indoor use only.
RoHS compliant.

SAFETY INSTRUCTIONS

Installation of the modulator must be done according local safety standards.
The modulator is powered from mains 230V~. This voltage is dangerous to life.
Any repairs must be done by a qualified personnel.
To avoid the electric shock follow these instructions:
do not remove the cover of the power supply section, without isolating the unit from the mains supply;
do not plug the modulator into the mains supply if the power cord or plug are damaged;
do not plug the modulator into the mains supply until all cables have been connected correctly;
to disconnect the modulator, disconnect plug from mains socket.
the mains socket must be easily accessible;
modulator shall not be exposed to dripping or splashing water and no objects filled with liquids, such as vases, shall be placed on it;
avoid placing modulator next to central heating components and in areas of high humidity;
no naked flame sources, such as lighted candles, should be placed on modulator;
if the modulator has been kept in cold conditions for a long time, keep it in a warm room no less than 2 hours before plugging into the mains;
the ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains;
mount the modulator in vertical position with power supply located on the left;
from top, front and bottom of installed modulator must be at least 10 cm free space.

This product complies with the relevant clauses of the European Directive 2002/96/EC. The unit must be recycled or discarded according to applicable local and national regulations.

EXTERNAL VIEW AND OPERATING CONTROLS

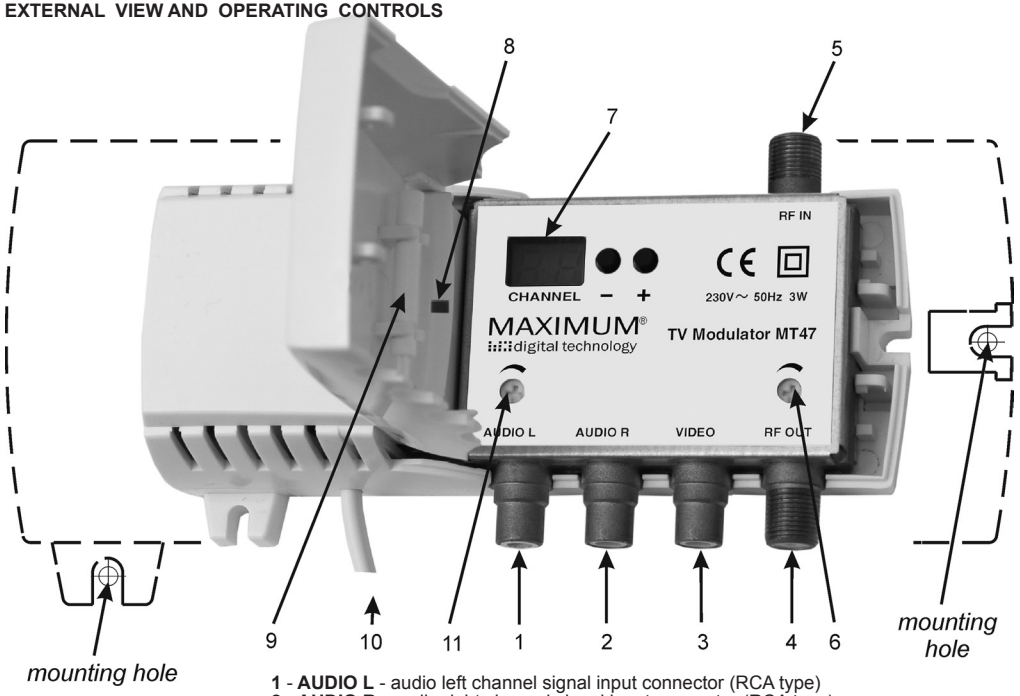

Figure 1.

1 - **AUDIO L** - audio left channel signal input connector (RCA type)
2 - **AUDIO R** - audio right channel signal input connector (RCA type)
3 - **VIDEO** - video signal input connector (RCA type)
4 - **RF OUT** - RF signal output connector (F type)
5 - **RF IN** - RF signal input connector (F type)
6 - **RF OUT** - RF output signal level regulator
7 - two-digit LED display
8 - **POWER** - power indicator
9 - screwdriver
10 - power cord
11 - **AUDIO** - sound subcarrier deviation regulator (for MT47 only)

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INSTALLATION INSTRUCTIONS

Read the safety instruction first.

To change the modulator settings, open the plastic cover.

If RF IN connector on the modulator is not used, connect the 75 Ω load supplied.

When modulators are cascading, space between channels must be no less than two (for example 21, 24, 27 and etc.).

To wall mount the modulator - screw the modulator to the wall (see figure 1).

Do not connect TV antennas to modulator RF IN connector directly. If you intend to combine TV signals of antennas and the modulator, plug in booster with output-to-input isolation ≥20 dB between antenna output and RF IN connector.

DEFAULT SETTINGS

1. Output channel E02;
2. Audio subcarrier deviation ±50 kHz (when audio signal level 1 kHz is 775 mV);
3. B/G standard; audio subcarrier 5.5 MHz (Preset bG);
4. Test pattern generator OFF (Preset no);
5. Frequency shift none (Preset 0);
6. P/S ratio -16 dB (Preset 16);
7. Output signal on (Preset on);
8. Sound subcarriers deviation regulator (Preset 0, for MT57);
9. Sound mode STEREO (Preset AS, for MT57).

OPERATING

CHANGING OF SETTINGS

The modulator has two modes of operating:

1. normal: sets after plug in;

Output channel can be selected in normal mode by pressing buttons "-" or "+" (see tables 2-11).

2. setting: to enter the setting mode press and hold "-" and "+" buttons simultaneously for 1 second, to exit setting mode press and hold "-" and "+" buttons simultaneously for 1 second.

Select of necessary to change parameter by pressing button "-" and set necessary mode by pressing "+" button.

1. TV system setting:
   a) after switching settings mode, indicator displays current TV system (see table 1);
   b) set necessary TV system by pressing "-" button (see tables 2-11);
   c) after TV system changing, modulator sets to first channel of selected TV system (see tables 2-11), other settings remains unchanged.
2. test pattern generator:
   a) press "-" button;
   b) switching between OFF and ON by pressing button "+", **"no"** - test pattern generator OFF, **"tS"** - test pattern generator ON.
3. fine tuning of video carrier frequency:
   a) press button "-";
   b) shift video carrier frequency by pressing button "+" (see table 12).
4. picture/sound ratio switching:
   a) press button "-";
   b) switching between 12 dB and 16 dB by pressing button "+".
5. output signal switching:
   a) press button "-";
   b) switching between RF ON and RF OFF by pressing button "+", **"on"** - RF ON, **"oF"** - RF OFF.
6. sound subcarriers deviation regulation (for MT57):
   a) press button "-";
   b) set necessary deviation by pressing button "+" (see table 13).
7. STEREO/MONO mode switching (for MT57):
   a) press button "-";
   b) switch between MONO/STEREO mode by pressing button "+" ("A-" - mono, "AS"- stereo).

PROTECTION FROM UNAUTHORIZED ACCESS

To prevent unauthorized access press buttons "-" and "+" simultaneously twice in 0.5 sec. "LO" will briefly be displayed. To revert to normal operation, repeat above procedure. "UL" will briefly be displayed. The symbol "LO" appears, if you try to change settings in locked mode.

SOUND SUBCARRIER DEVIATION SETTING

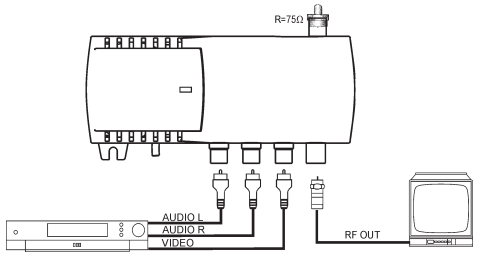
MT47: When input signal level is from 340 mV to 775 mV in both audio inputs, use a regulator (figure 1, position 11) to set the sound subcarrier deviation ±50 kHz. The factory set sound subcarrier deviation is ±50 kHz for an input signal level of 775 mV in both audio inputs.

MT57: The factory set sound subcarier deviation is ±50 kHz for an input signal 1 kHz/775 mV in both audio inputs (Preset 0). Use software control for audio deviation regulation ±6 dB (see table 13).

OUTPUT SIGNAL LEVEL ADJUSTMENT

Use a regulator (figure 1, position 6) to adjust an output level. Output level adjustment range is 0 ÷ -20 dB.

INSTALLATION EXAMPLE



TECHNICAL CHARACTERISTICS

Type		MT47	MT57
Video input	frequency range	20 Hz - 6 MHz	
	level/impedance	1 V ± 0.1 dB/75 Ω	
Audio input	frequency range	20 Hz - 15 kHz	
	level adjustment	0 ÷ 7 dB	± 6 dB by 2 dB step (pr.)
	level/impedance/deviation*	2x775 mV RMS/10 kΩ/50 kHz*	2x775 mV RMS/10 kΩ/50 kHz**
RF output	level (typical)/impedance	85 dBμV/75 Ω	
	level adjustment	0 ÷ -20 dB	
	output channels (pr.) according channels charts	B/G/D/K/H/I/L/M/N/Australia	
	frequency range (pr.)	45-84 MHz, 170-300 MHz, 470-862 MHz	
Sound subcarrier frequency (pr.)		4.5 MHz, 5.5 MHz, 6.0 MHz, 6.5 MHz	B/G/Australia stereo A2***
Fine tuning range of video carrier frequency (pr.)		±2.25 MHz max. by 0.25 MHz step	
Combining through loss		2.5 dB	
Frequency range of RF combining		5-862 MHz	
A/V ratio (pr.)		12/16 dB	
Amplitude modulation depth, typical		81 %	
Signal/noise ratio, weighted		≥ 55 dB	
Power consumption		198-250 V~ 50 Hz 3 W	198-250 V~ 50 Hz 4 W
Operating temperature range		-10° ÷ + 50° C	+0° ÷ + 50° C
Dimensions/Weight (packed)		133x73x39 mm/0.36 kg	

* available to set standard deviation ± 50 kHz of sound carrier when input level 340 mV÷775 mV in both audio inputs
** available to set standard deviation ± 50 kHz of sound carrier when input level 388 mV÷1545 mV RMS in both audio inputs
*** second sound subcarrier frequency 5.742 MHz
(pr.) software control

TV system setting

Table 1.

TV system	Displayed	Audio subcarrier	Video standard
B/G	b5	5.5 MHz	PAL
D/K	d6	6.5 MHz	PAL, SECAM
Australia	A5	5.5 MHz	PAL
I	.6	6.0 MHz	PAL
L	L6	6.5 MHz	SECAM
M	J4	4.5 MHz	NTSC
N	U4	4.5 MHz	NTSC

VHF BAND I, III CHANNELS

Table 2

SYSTEM: B, G				
Band	Channel	Displayed	Vision C.	Audio C.
BI	E1	01	45,25	50,75
	E2	02	48,25	53,75
	E3	03	55,25	60,75
	E4	04	62,25	67,75
BIII	E5	05	175,25	180,75
	E6	06	182,25	187,75
	E7	07	189,25	194,75
	E8	08	196,25	201,75
	E9	09	203,25	208,75
	E10	10	210,25	215,75
	E11	11	217,25	222,75
	E12	12	224,25	229,75
S2	S11	71	231.25	236.75
	S12	72	238.25	243.75
	S13	73	245.25	250.75
	S14	74	252.25	257.75
	S15	75	259.25	264.75
	S16	76	266.25	271.75
	S17	77	273.25	278.75
	S18	78	280.25	285.75
	S19	79	287.25	292.75
	S20	80	294.25	299.75

Table 3

SYSTEM: D, K				
Band	Channel	Displayed	Vision C.	Audio C.
BI/II	C1	01	49,75	56,25
	C2	02	59,25	65,75
	C3	03	77,25	83,75
BIII	C6	06	175,25	181,75
	C7	07	183,25	189,75
	C8	08	191,25	197,75
	C9	09	199,25	205,75
	C10	10	207,25	213,75
	C11	11	215,25	221,75
	C12	12	223,25	229,75
SR2/ SR3	SR11	71	231.25	237.75
	SR12	72	239.25	245.75
	SR13	73	247.25	253.75
	SR14	74	255.25	261.75
	SR15	75	263.25	269.75
	SR16	76	271.25	277.75
	SR17	77	279.25	285.75
	SR18	78	287.25	293.75
	S19	79	295.25	301.75

Table 4

SYSTEM: I/South Africa				
Band	Channel	Displayed	Vision C.	Audio C.
III	4	04	175.25	181.25
	5	05	183.25	189.25
	6	06	191.25	197.25
	7	07	199.25	205.25
	8	08	207.25	213.25
	9	09	215.25	221.25
	10	10	223.25	229.25
	11	11	231.25	237.25
	12	12	239.25	245.25
	13	13	247.25	253.25

Table 5

SYSTEM: B, Australia				
Band	Channel	Displayed	Vision C.	Audio C.
BI	D1	01	57,25	62,75
	D2	02	64,25	69,75
BIII	D6	06	175,25	180,75
	D7	07	182,25	187,75
	D8	08	189,25	194,75
	D9	09	196,25	201,75
	D10	10	210,25	215,75
	D11	11	217,25	222,75
	D12	12	224,25	229,75
Hyper band	S11	81	231.25	236.75
	S12	82	238.25	243.75
	S13	83	245.25	250.75
	S14	84	252.25	257.75
	S15	85	259.25	264.75
	S16	86	266.25	271.75
	S17	87	273.25	278.75
	S18	88	280.25	285.75
	S19	89	287.25	292.75
	S20	90	294.25	299.75

Table 6

SYSTEM: L, France				
Band	Channel	Displayed	Vision C.	Audio C.
BIII	L05	05	176,00	182,50
	L06	06	184,00	190,50
	L07	07	192,00	198,50
	L08	08	200,00	206,50
	L09	09	208,00	214,50
	L10	10	216,00	222,50
Inter-bande	L	71	236.75	243.25
	M	72	248.75	255.25
	N	73	260.75	267.25
	O	74	272.75	279.25
	P	75	284.75	291.25
	Q	76	296.75	303.25

Table 7

SYSTEM: M, Japan				
Band	Channel	Displayed	Vision C.	Audio C.
BIII	J4	04	171,25	175,75
	J5	05	177,25	181,75
	J6	06	183,25	187,75
	J7	07	189,25	193,75
	J8	08	193,25	197,75
	J9	09	199,25	203,75
	J10	10	205,25	209,75
	J11	11	211,25	215,75
	J12	12	217,25	221,75

Table 8

SYSTEM: N, USA				
Band	Channel	Displayed	Vision C.	Audio C.
Low	2	02	55,25	59,75
	3	03	61,25	65,75
	4	04	67,25	71,75
	5	05	77,25	81,75
High	A7	07	175,25	179,75
	A8	08	181,25	185,75
	A9	09	187,25	191,75
	A10	10	193,25	197,75
	A11	11	199,25	203,75
	A12	12	205,25	209,75
	A13	13	211,25	215,75

UHF BAND IV AND BAND V CHANNELS

Table 9

SYSTEM: B, Australia				
Band	Channel	Displayed	Vision C.	Audio C.
IV	20	20	471.25	476.75
	21	21	478.25	483.75
	22	22	485.25	490.75
	23	23	492.25	497.75
	24	24	499.25	504.75
	25	25	506.25	511.75
	26	26	513.25	518.75
	27	27	520.25	525.75
	28	28	527.25	532.75
	29	29	534.25	539.75
	30	30	541.25	546.75
	31	31	548.25	553.75
	32	32	555.25	560.75
	33	33	562.25	567.75
	34	34	569.25	574.75
	35	35	576.25	581.75
V	36	36	583.25	588.75
	37	37	590.25	595.75
	38	38	597.25	602.75
	39	39	604.25	609.75
	40	40	611.25	616.75
	41	41	618.25	623.75
	42	42	625.25	630.75
	43	43	632.25	637.75
	44	44	639.25	644.75
	45	45	646.25	651.75
	46	46	653.25	658.75
	47	47	660.25	665.75
	48	48	667.25	672.75
	49	49	674.25	679.75
	50	50	681.25	686.75
	51	51	688.25	693.75
	52	52	695.25	700.75
	53	53	702.25	707.75
	54	54	709.25	714.75
	55	55	716.25	721.75
	56	56	723.25	728.75
	57	57	730.25	735.75
	58	58	737.25	742.75
	59	59	744.25	749.75
	60	60	751.25	756.75
	61	61	758.25	763.75
	62	62	765.25	770.75
	63	63	772.25	777.75
	64	64	779.25	784.75
	65	65	786.25	791.75
	66	66	793.25	798.75
	67	67	800.25	805.75
	68	68	807.25	812.75
	69	69	814.25	819.75
	70	70	821.25	826.75
	71	71	828.25	833.75
	72	72	835.25	840.75
	73	73	842.25	847.75
	74	74	849.25	854.75
	75	75	856.25	861.75

Table 10

SYSTEMS: M, N						
Channel		Vision C.	Audio C.	Channel	Vision C.	Audio C.
J4	U4			J4	U4	
13	14	471.25	475.75	46	47	669.25	673.75
14	15	477.25	481.75	47	48	675.25	679.75
15	16	483.25	487.75	48	49	681.25	685.75
16	17	489.25	493.75	49	50	687.25	691.75
17	18	495.25	499.75	50	51	693.25	697.75
18	19	501.25	505.75	51	52	699.25	703.75
19	20	507.25	511.75	52	53	705.25	709.75
20	21	513.25	517.75	53	54	711.25	715.75
21	22	519.25	523.75	54	55	717.25	721.75
22	23	525.25	529.75	55	56	723.25	727.75
23	24	531.25	535.75	56	57	729.25	733.75
24	25	537.25	541.75	57	58	735.25	739.75
25	26	543.25	547.75	58	59	741.25	745.75
26	27	549.25	553.75	59	60	747.25	751.75
27	28	555.25	559.75	60	61	753.25	757.75
28	29	561.25	565.75	61	62	759.25	763.75
29	30	567.25	571.75	62	63	765.25	769.75
30	31	573.25	577.75		64	771.25	775.75
31	32	579.25	583.75		65	777.25	781.75
32	33	585.25	589.75		66	783.25	787.75
33	34	591.25	595.75		67	789.25	793.75
34	35	597.25	601.75		68	795.25	799.75
35	36	603.25	607.75		69	801.25	805.75
36	37	609.25	613.75		70	807.25	811.75
37	38	615.25	619.75		71	813.25	817.75
38	39	621.25	625.75		72	819.25	823.75
39	40	627.25	631.75		73	825.25	829.75
40	41	633.25	637.75		74	831.25	835.75
41	42	639.25	643.75		75	837.25	841.75
42	43	645.25	649.75		76	843.25	847.75
43	44	651.25	655.75		77	849.25	853.75
44	45	657.25	661.75		78	855.25	859.75
45	46	663.25	667.75				

Table 11

SYSTEMS: I, G, H, K, L					
Band	Channel	Vision C.	Audio C. Stand.G,H	Audio C. Stand.I	Audio C. Stand.K,L
IV	21	471.25	476.75	477.25	477.75
	22	479.25	484.75	485.25	485.75
	23	487.25	492.75	493.25	493.75
	24	495.25	500.75	501.25	501.75
	25	503.25	508.75	509.25	509.75
	26	511.25	516.75	517.25	517.75
	27	519.25	524.75	525.25	525.75
	28	527.25	532.75	533.25	533.75
	29	535.25	540.75	541.25	541.75
	30	543.25	548.75	549.25	549.75
	31	551.25	556.75	557.25	557.75
	32	559.25	564.75	565.25	565.75
	33	567.25	572.75	573.25	573.75
	34	575.25	580.75	581.25	581.75
	35	583.25	588.75	589.25	589.75
	36	591.25	596.75	597.25	597.75
	37	599.25	604.75	605.25	605.75
V	38	607.25	612.75	613.25	613.75
	39	615.25	620.75	621.25	621.75
	40	623.25	628.75	629.25	629.75
	41	631.25	636.75	637.25	637.75
	42	639.25	644.75	645.25	645.75
	43	647.25	652.75	653.25	653.75
	44	655.25	660.75	661.25	661.75
	45	663.25	668.75	669.25	669.75
	46	671.25	676.75	677.25	677.75
	47	679.25	684.75	685.25	685.75
	48	687.25	692.75	693.25	693.75
	49	695.25	700.75	701.25	701.75
	50	703.25	708.75	709.25	709.75
	51	711.25	716.75	717.25	717.75
	52	719.25	724.75	725.25	725.75
	53	727.25	732.75	733.25	733.75
	54	735.25	740.75	741.25	741.75
	55	743.25	748.75	749.25	749.75
	56	751.25	756.75	757.25	757.75
	57	759.25	764.75	765.25	765.75
	58	767.25	772.75	773.25	773.75
	59	775.25	780.75	781.25	781.75
	60	783.25	788.75	789.25	789.75
	61	791.25	796.75	797.25	797.75
	62	799.25	804.75	805.25	805.75
	63	807.25	812.75	813.25	813.75
	64	815.25	820.75	821.25	821.75
	65	823.25	828.75	829.25	829.75
	66	831.25	836.75	837.25	837.75
	67	839.25	844.75	845.25	845.75
	68	847.25	852.75	853.25	853.75
	69	855.25	860.75	861.25	861.75

FINE TUNING

Table 12

Displayed	Shift MHz
0	0
1	+0.25
2	+0.5
3	+0.75
4	+1.0
5	+1.25
6	+1.5
7	+1.75
8	+2.00
9	+2.25
-9	-2.25
-8	-2.00
-7	-1.75
-6	-1.5
-5	-1.25
-4	-1.0
-3	-0.75
-2	-0.5
-1	-0.25

Table 13

Displayed	Audio level, mV/dB
0	775/0
2	615/+2
4	490/+4
6	388/+6
-6	1545/-6
-4	1227/-4
-2	975/-2